SONY®

DIGITAL VIDEOCASSETTE PLAYER

DSR-60
DSR-60P

INSTALLATION MANUAL

1st Edition
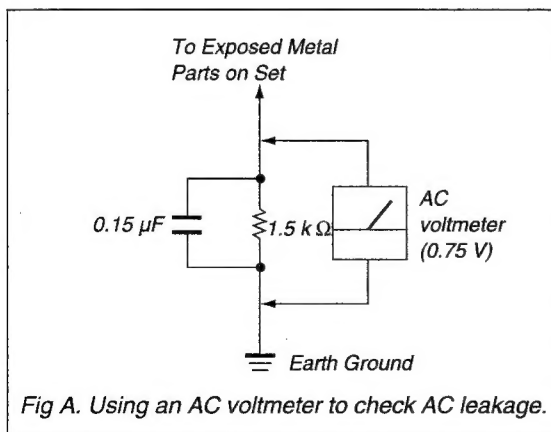
DVCAM ™

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

Fig A. Using an AC voltmeter to check AC leakage.

Introducing this manual

This manual is the installation manual of the digital videocassette player model DSR-60/60P.

This manual contains rack mount information necessary for installation of the equipment, the connector information necessary for connecting the unit with peripherals and others.

Related manuals

In addition to this Installation Manual, the following manuals are provided.

- **Operating Instructions (Supplied with equipment)**

  Parts number : 3-859-820-11 (English, for UC, CE)

  3-859-820-21 (French, for UC, CE)

  3-859-820-31 (German, for CE)

  3-859-820-41 (Italian, for CE)

  Explains how to operate this equipment.

- **Service Manual vol. 1 (Not supplied with equipment)**

  Parts number : 9-977-696-11

  Contains the maintenance information and servicing information necessary for parts replacement and adjustment.

- **Service Manual vol. 2 (Not supplied with equipment)**

  Parts number : 9-977-696-21

  Contains the block diagrams, board layouts, schematic diagrams and parts lists.
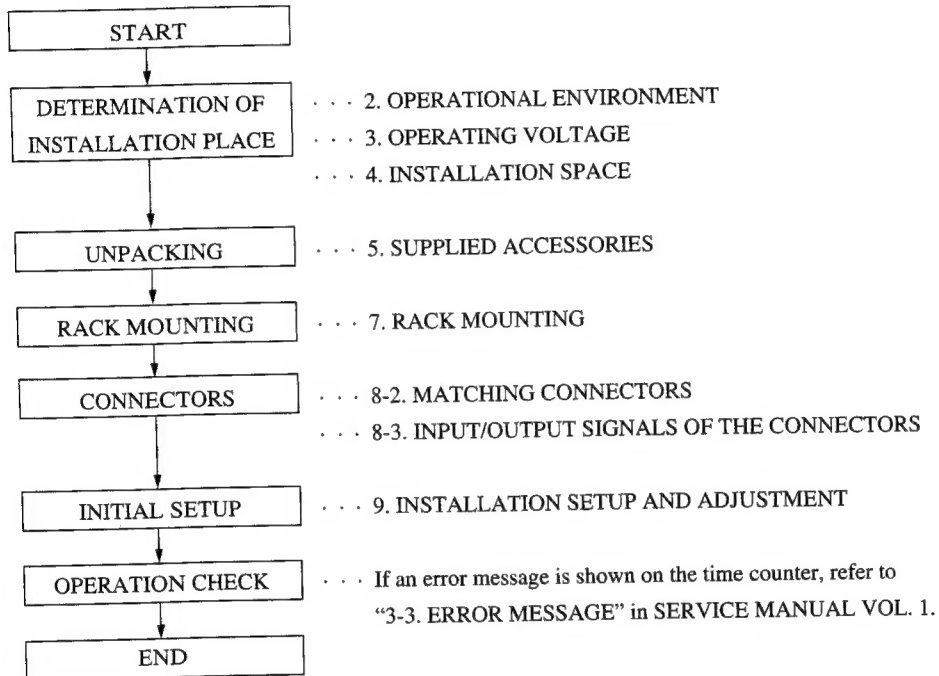
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INSTALLATION

INSTALLATION

Be sure to install the DSR-60/60P in location satisfying the required operational environment described below to assure the DSR-60/60P superior performance and to maintain the excellent serviceability and accessibility.

1. INSTALLATION PROCEDURE

```
┌─────────────────────┐
│        START        │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐      · · · 2. OPERATIONAL ENVIRONMENT
│  DETERMINATION OF   │      · · · 3. OPERATING VOLTAGE
│ INSTALLATION PLACE  │      · · · 4. INSTALLATION SPACE
└─────────────────────┘
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│      UNPACKING      │
└─────────────────────┘
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└─────────────────────┘
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│     CONNECTORS      │      · · · 8-3. INPUT/OUTPUT SIGNALS OF THE CONNECTORS
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┌─────────────────────┐      · · · 9. INSTALLATION SETUP AND ADJUSTMENT
│    INITIAL SETUP    │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐      · · · If an error message is shown on the time counter, refer to
│   OPERATION CHECK   │            "3-3. ERROR MESSAGE" in SERVICE MANUAL VOL. 1.
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│         END         │
└─────────────────────┘
```

2. OPERATIONAL ENVIRONMENT

- Operating temperature : +5 °C to +40 °C
- Humidity : 80 % or less
- Storage temperature : −20 °C to +60 °C
- Locations to avoid : • Areas where the unit will be exposed to direct sunlight or any other strong lights.
  - Dusty areas or areas where it is subject to vibration.
  - Areas with strong electric or magnetic fields.
  - Areas near heat sources.
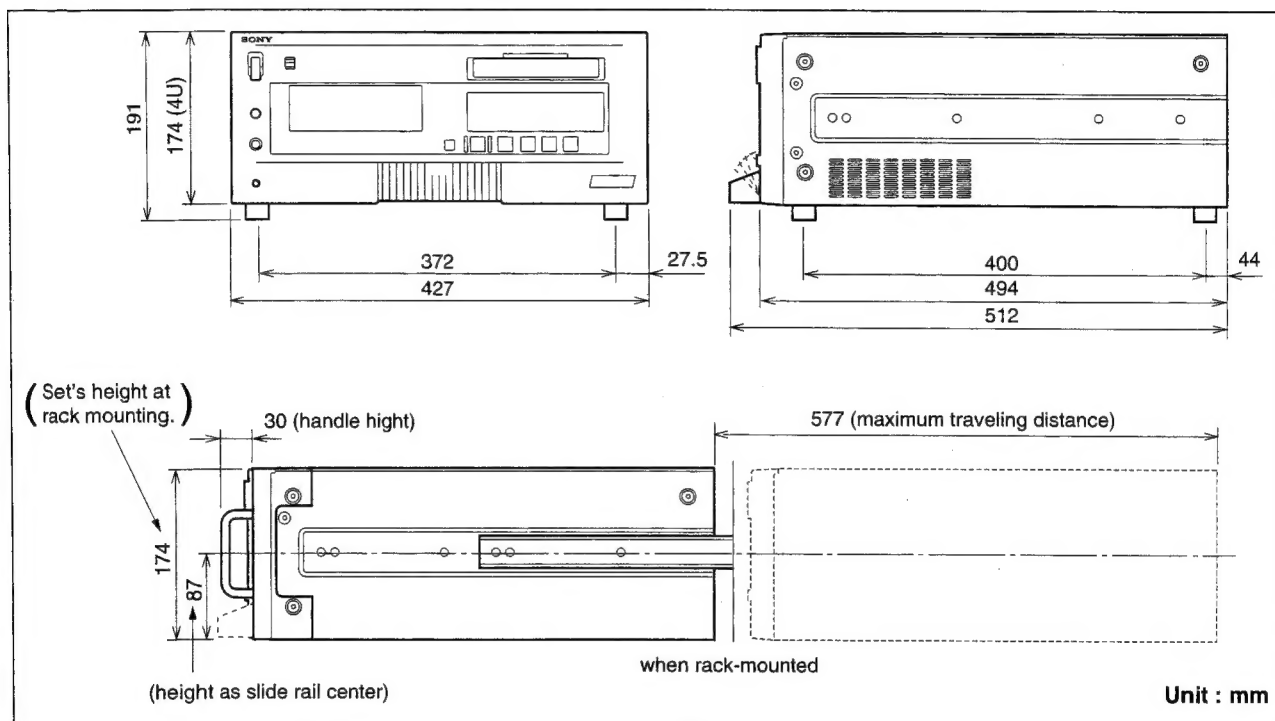   (Good air circulation is essential to prevent internal heat build-up. Place the unit in location with sufficient air circulation. Do not block the ventilation holes on the cabinet and the rear panel.)
- Horizonal condition : within ±30 °

3. OPERATING VOLTAGE

- Power voltage : AC 100 V to 120 V/NTSC
  AC 200 V to 240 V/PAL
- Power frequency : 50/60 Hz
- Power consumption : NTSC (UC) : 85 W
  PAL (CE) : 87 W

1

4. INSTALLATION SPACE

(1) The rear side must be at least 40 cm away from the walls for ventilation and maintenance.

(2) When the unit is operated on a desk or similar condition, assure that the clearance above the unit is at least 40 cm to provide accessibility to the printed circuit boards and other mechanical parts. Note that it is not necessary to provide the space when the unit is mounted in a rack since the printed circuit boards can be repaired after it is pulled out.

(Set's height at rack mounting.)

174

87

(height as slide rail center)

191
174 (4U)

372
427

27.5

400
494
512

44

30 (handle hight)

577 (maximum traveling distance)

when rack-mounted

Unit : mm

5. SUPPLIED ACCESSORIES

- AC power cord : (1)
- RCC-5G 9-pin remote cable : (1)
- Operating instructions : (1)
- ClipLink™ Guide : (1)

6. OPTIONAL ACCESSORIES

- TBC remote control unit : UVR-60/60P
- Rack mount Kit : RMM-130
  (The unit can be mounted in a 19-inch standard rack)
- Remote control cable : RCC-5G/10G/30G
- Cleaning cassette tape : PDVM-12CL
- Circus Remote control : SVRM-100A
- Digital video cassette (Mini size) : PDVM-12ME/22ME/32ME/40ME
- Digital video cassette (Standard size) : PDV-64ME/94ME/124ME/184ME
- SDI output board : DSBK-100/100P
- QSDI output board : DSBK-110/110P
- Time code input/output board : DSBK-130/130P

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7. RACK MOUNTING

The unit can be mounted in a 19-inch standard rack.
It is recommended to use the following kit.

Rack Mount Kit   : RMM-130 (optional accessory)
or
RACK-MOUNT SLIDES : MODEL 305
                           slide length 22 inch
                           (ACCURIDE)

Note for rack mounting :

• When several VTRs are mounted in a rack, it is recommended to install a fan for ventilation. Good air circulation is essential to prevent internal heat build-up in a rack (+5 °C to +40 °C must be met for all units).
• Never remove an upper panel and lower panel during rack mounting.
• Be sure to secure the rack to the floor to avoid accidents when a unit is pulled out.
• Connect long enough cables on the connector panel, considering that the unit is pulled out.
• This equipment can use with two tiers.
  But with three tiers and more, keep the spaces between the each VTRs in the rack 1 unit (about 44 mm) or more.
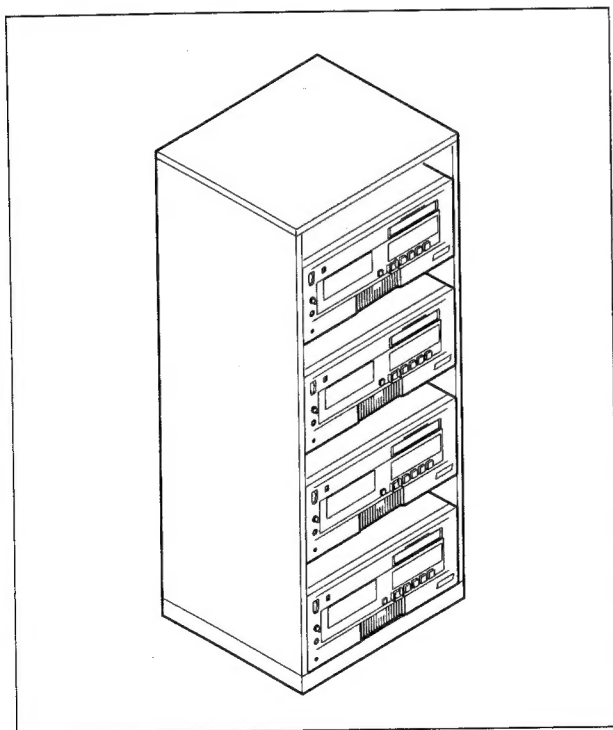
1. Remove the four screws on right and left side panels.
   And install the Inner Members of the rails to the right and left side panels with the screws removed.
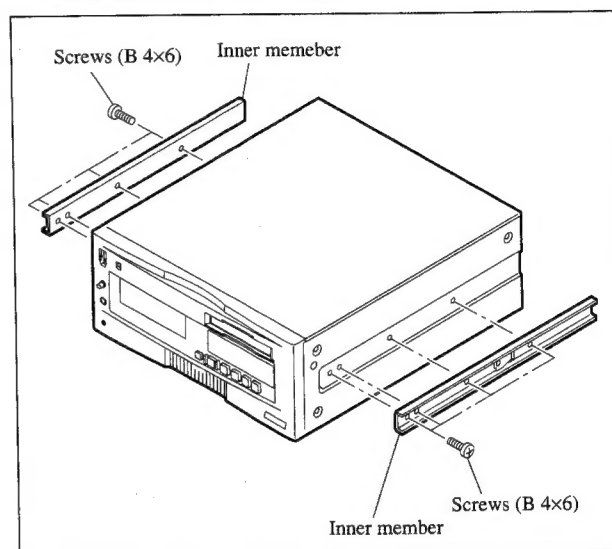
2. Install the Outer Member Brackets of the slide rails to the rack. Adjust the distance from the edge of the slide rail to the outside of the rack so that it meets the required specification.
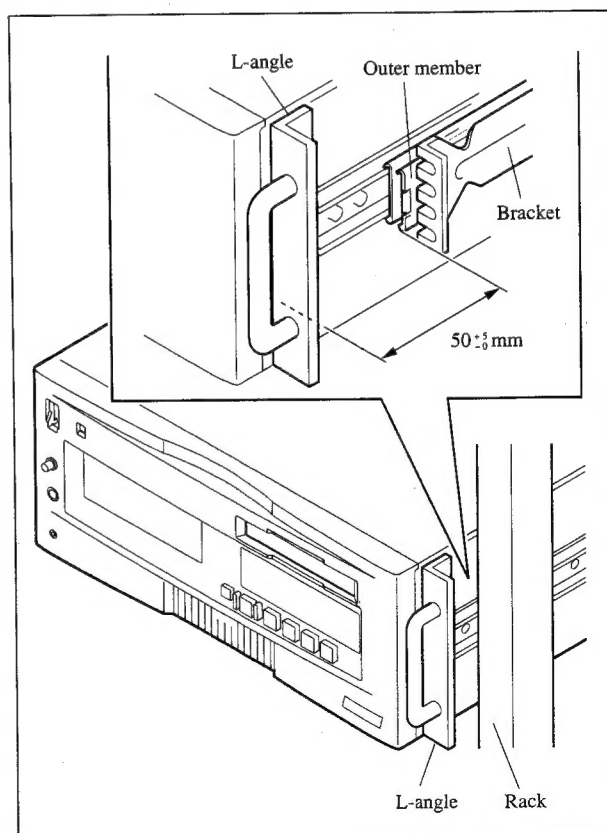
3. Remove the two screws (B 4×8) on the right and left side panels. (Be careful not to lose these four screws.)

Screws (B 4×8)

Screws (B 4×8)
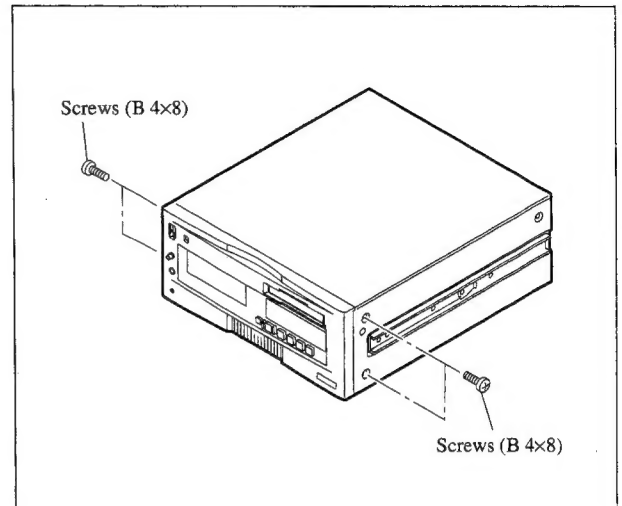
4. Install the L-angles to the holes described in step 3 with the supplied screws (PSW 4×16) in RMM-130 for these L-angles.

Screws (PSW 4×16)

L-angle

Screws (PSW 4×16)
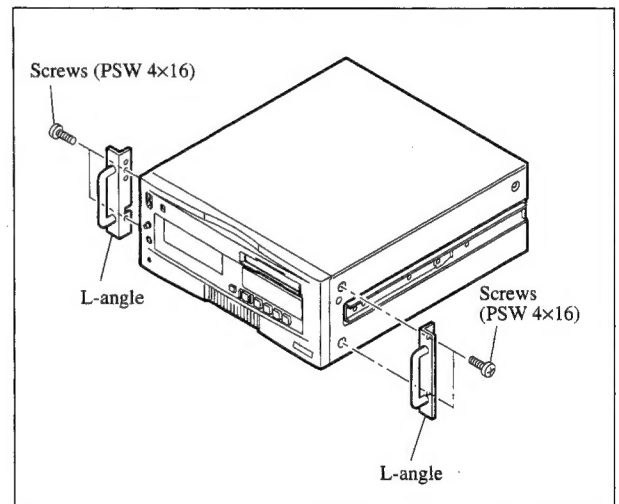
L-angle

Note: Never use screws PSW 4×16 to install the right and left side panels without L-angles. Be sure to install the panels with the screws B 4×8 removed in step 3. Screws for L-angles are longer than the side panels. Therefore, using the screws PSW 4×16 may cause trouble in the unit.

8. CONNECTION OF EDITING EQUIPMENT, AND INPUT/OUTPUT SIGNALS OF CONNECTORS

8-1. Connection of Editing Equipment

Connection for Digital Non-Linear Editing System

The digital non-linear editing system can be configured by connecting DSR-60/60P with the edit station ES-7.
Use of the optional QSDI interface enables transfer of the compressed data such as video, audio and timecode from DSR-60/60P to ES-7.
DSR-60/60P supports the ClipLink function The index picture which is recorded on tape and the ClipLink log data which is stored in the cassette memory can be transferred immediately to ES-7.
• Refer to "ClipLink™ Guide" supplied with the unit for general description of ClipLink functions.

Connection example of digital non-linear editing system when DSR-60/60P is used as a player, is shown below.
• Refer to the Operating Instructions supplied with ES-7 for the connection procedure of the peripheral equipment (such as control panel ESBK-7011, disk unit ESBK-7045, etc.,) of ES-7.
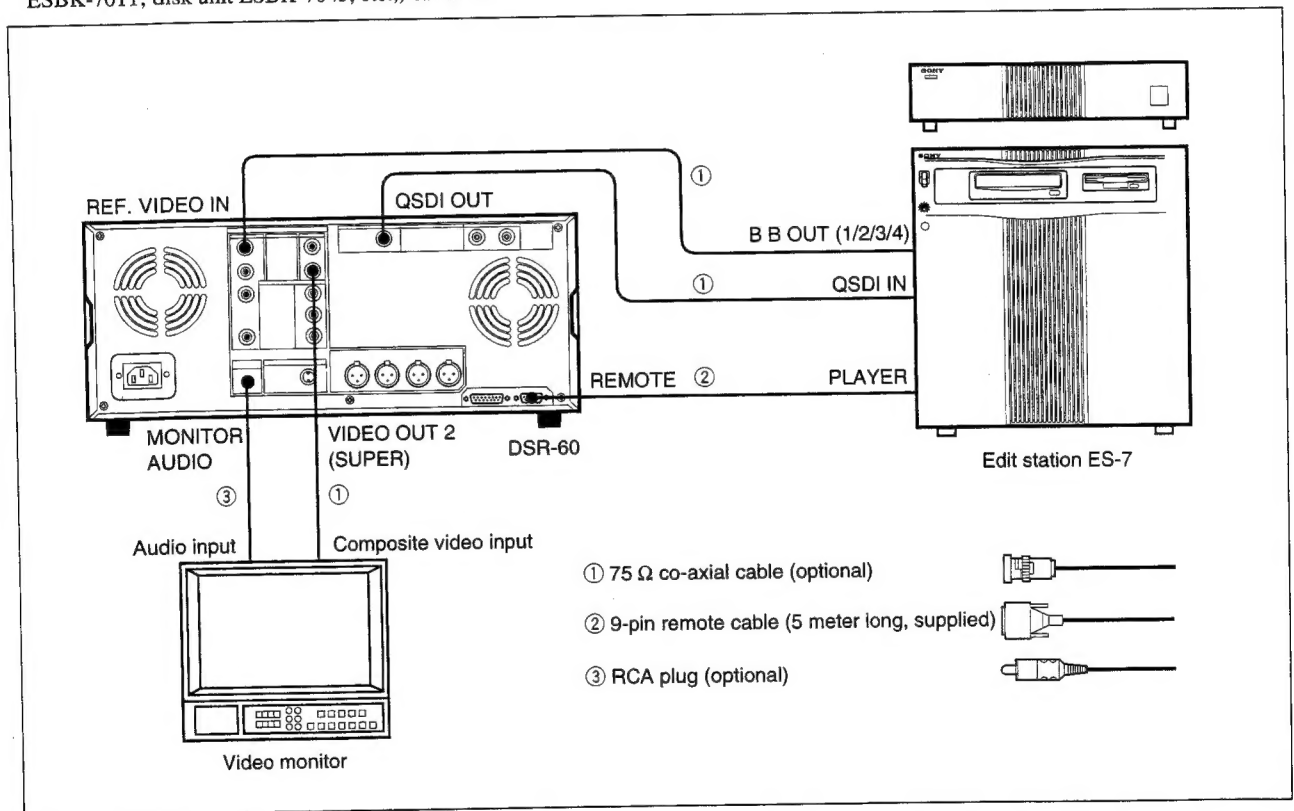
DSR-60 setting

Switch	Setting
REMOTE/LOCAL	REMOTE
REF. VIDEO IN terminated in 75 Ω	ON

Connection for Cut Editing System

Connection example of the cut editing system when DSR-60/60P is connected with DSR-85/85P is shown below.

- Refer to the Operating Instructions of other equipment at the same time for connection.

When ASSEMBLE edit or INSERT edit is selected at the editor, the EDIT MODE indicator on the front panel of DSR-85/85P (recorder) lights, entering the editing mode automatically.

① 75 Ω co-axial cable (optional)

② 9-pin remote cable (5 meter long, supplied)

③ RCA plug (optional)

①

DSR-60/60P (player)   QSDI OUT   QSDI IN   DSR-85/85P (recorder)

REF. VIDEO OUT

MONITOR AUDIO   VIDEO OUT 2 (SUPER)   REMOTE   MONITOR AUDIO   VIDEO OUT 2 (SUPER)   REMOTE

③   ①   ②   ③   ①   ②

Audio input   Composite video input   Audio input   Composite video input

PLAYER   REF. VIDEO IN

Source monitor   Main monitor

RECORDER

Editing control unit
RM-450/PVE-500 (editing side)

Switch setting of DSR-60/60P (player) and DSR-85/85P (recorder)

Switch	Recorder	Player
REMOTE/LOCAL	REMOTE	REMOTE

- Refer to the Operating Instructions of DSR-85/85P for video/audio input of recorder and for audio mode setting.

Note : When the QSDI interface is used for the connection, monitor of the JOG audio cannot be switched to the recorder monitor even through recorder enters the E-E mode. Therefore, monitor the JOG audio at the player side.

About the reference video signal

The reference video signal which is synchronized with the video signal in use, is necessary and must be input to the REF. VIDEO IN connector for analog signal editing in order that the built-in TBC works correctly and the stable picture and audio are obtained.

Connection for A/B Roll Editing System

Connection example of the A/B roll editing system using a recorder and two players is shown below.
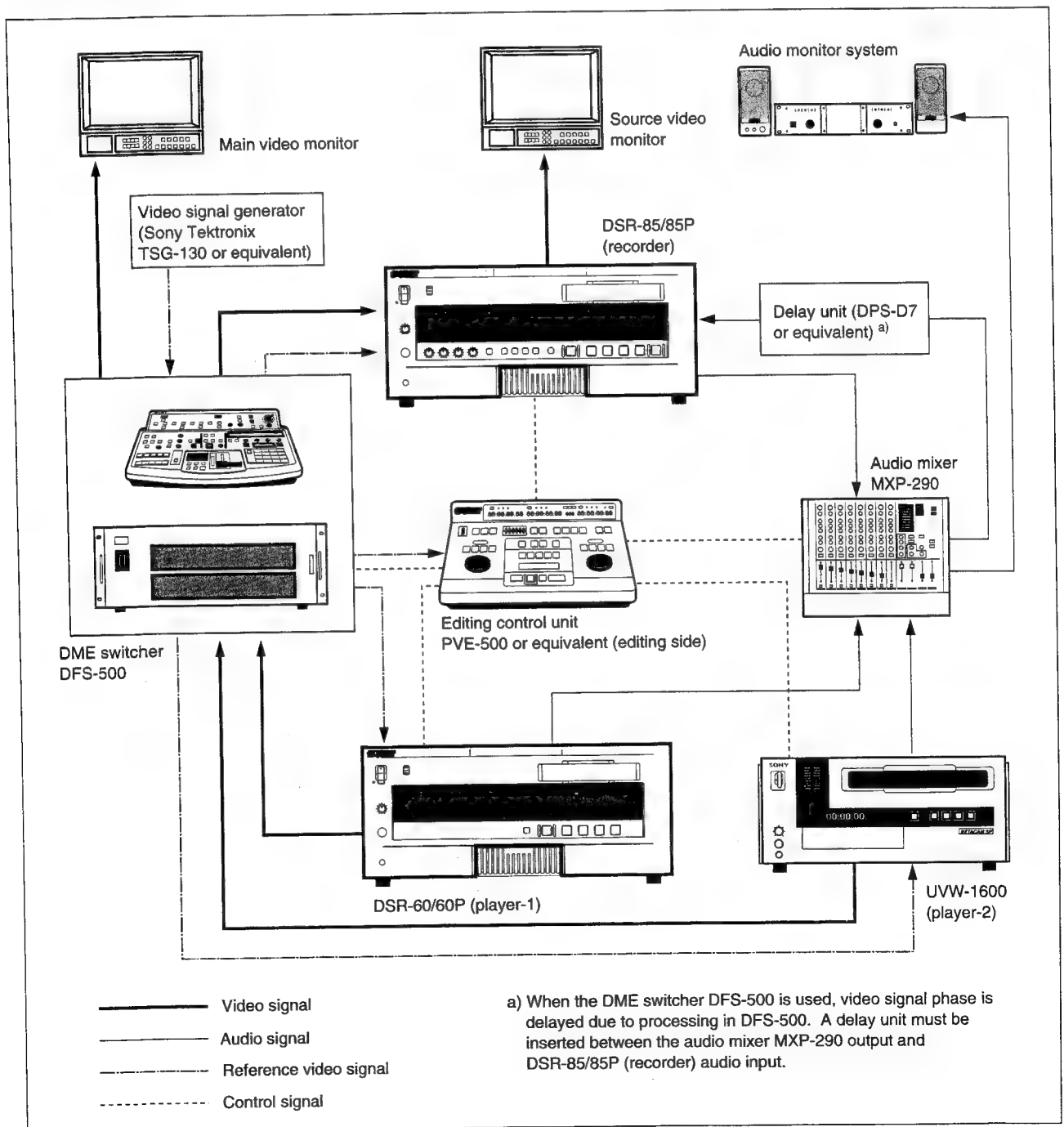In this example, DSR-85/85P is used as recorder, DSR-60/60P is used as player-1 and an analog betacam video cassette player UVW-1600 is used as player-2. When you require the completed tape (the tape in which complete packaged program is stored) in the betacam format, use a betacam VTR as recorder.
The following system configuration diagram is shown with the main emphasis placed on the signal flow. Refer to the following pages for actual connection procedure and setting of DSR-85/85P (recorder).

Main video monitor

Source video monitor

Audio monitor system

Video signal generator
(Sony Tektronix
TSG-130 or equivalent)

DSR-85/85P
(recorder)

Delay unit (DPS-D7
or equivalent) a)

Audio mixer
MXP-290

Editing control unit
PVE-500 or equivalent (editing side)

DME switcher
DFS-500

DSR-60/60P (player-1)

UVW-1600
(player-2)

———————— Video signal
———————— Audio signal
—·—·—·—·— Reference video signal
-------------- Control signal

a) When the DME switcher DFS-500 is used, video signal phase is delayed due to processing in DFS-500. A delay unit must be inserted between the audio mixer MXP-290 output and DSR-85/85P (recorder) audio input.

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8-2. Matching Connectors

When external cables are connected to the connector on a connector panel during maintenance, the hardware listed below (or equivalents) must be used.

Panel indication	Matching Connector/Cable	
	Connector/Cable	Sony Part No.

ANALOG I/O
   REF. VIDEO IN/OUT
   TIME CODE OUT
   VIDEO OUT
   COMPONENT/RGB VIDEO OUT
	BNC, MALE	1-560-069-11

MONITOR AUDIO OUT	PIN PLUG	Standard Product
S VIDEO OUT	YC-15 V(1.5 m)	optional accessory
AUDIO OUT CH-1/2/3/4	XLR 3P, FEMALE	1-508-083-11
QSDI OUTPUT	BNC, MALE	1-560-069-11
TBC REMOTE	CONNECTOR, D-SUB 15P, FEMALE	1-561-610-21
	and JUNCTION SHELL, 15P	1-561-929-00
REMOTE	CONNECTOR, D-SUB 9P, MALE	1-560-651-11
	and JUNCTION SHELL, 9P	1-561-749-11
	RCC-5G(5 m)	supplied accessory
	RCC-10G (10 m)	optional accessory
	RCC-30G (30 m)	optional accessory

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8-3. Input/Output Signals of the Connectors

INPUT

REF.VIDEO : BNC×2 (loop-through)
1.0 Vp-p, 75 Ω, sync negative : for composite video signal (black burst signal possible)

OUTPUT

REF.VIDEO : BNC×1
NTSC   0.286 Vp-p, 75 Ω, sync negative (composite sync + burst signal)
PAL   0.3 Vp-p, 75 Ω, sync negative (composite sync)

VIDEO OUT : BNC×2
1/2 (SUPER) 1.0 Vp-p, 75 Ω, sync negative

COMPONENT/RGB OUT VIDEO   :   BNC×3
Luminance : 1.0 Vp-p, 75 Ω, sync negative
R-Y/B-Y   : 0.7 Vp-p, 75 Ω (NTSC : 75 % PAL : 100 %)

S VIDEO OUT : DIN 4P
Y : 1.0 Vp-p, 75 Ω, sync negative
C : NTSC 0.286 Vp-p (burst level), 75 Ω
     PAL   0.3 Vp-p (burst level), 75 Ω

SDI* : BNC×2
Serial digital interface format (270 Mbps),
SMPTE 259M/ITU-R BT.656
*Using optional DSBK-100/100P (SDI output board)

QSDI* OUT : BNC×1
Serial digital interface (DVCAM compression signal : Video + Audio + TC signal)
*Using optional DSBK-110/110P (QSDI output board)

AUDIO OUT : XLR 3P×4, MALE
+4 dBu, 600 Ω load, balanced (low impedance)

MONITOR AUDIO : PHONO JACK×1
–6 dBu, 47 kΩ load, unbalanced

HEADPHONES : Stereo phone jack×1
–16 dBu (front VR max.), 8 Ω load, unbalanced ∅6.3

TIME CODE* : BNC×1
2.2 Vp-p±3.0 dB, 75 Ω, unbalanced
*Using optional DSBK-130/130P (time code input/output board)

TBC REMOTE (D-sub 15 pin : MALE)

Pin No.	Signal	Operating Voltage	IN/OUT
1	SYNC CONTROL	–5 to +5 V	IN
2	HUE CONTROL	–5 to +5 V	IN
3	SC CONTROL	–5 to +5 V	IN
4	VIDEO LEVEL CONTROL	–5 to +5 V	IN
5	SET UP CONTROL	–5 to +5 V	IN
6	CHROMA LEVEL CONTROL	–5 to +5 V	IN
7	–9 V SUPPLY	–9 V	OUT
8	GND		
9	FRAME GND		
10	——	——	——
11	——	——	——
12	——	——	——
13	Y/C DELAY CONTROL	–5 to +5 V	IN
14	——	——	——
15	+9 V SUPPLY	+9 V	OUT

<external view>
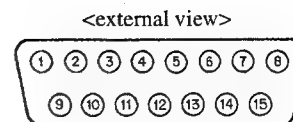
REMOTE (D-sub 9 pin : FEMALE)

Pin No.	Controlling Device	Controlled Device
1	Frame Ground	Frame Ground
2	Receive A	Transmit A
3	Transmit B	Receive B
4	Transmit Common	Receive Common
5	——	——
6	Receive Common	Transmit Common
7	Receive B	Transmit B
8	Transmit A	Receive A
9	Frame Ground	Frame Ground

<external view>
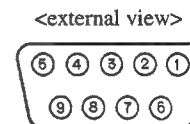
S VIDEO (Circular 4 pin)

Pin No.	Output Signal
1	Y (G)
2	C (G)
3	Y (X)
4	C (X)
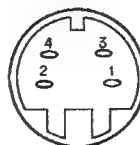
9. INSTALLATION SETUP AND ADJUSTMENT

9-1. Switch Settings on the Connector Panel

When the unit is installed, be sure to perform the following setup and adjustment. If the adjustment is not performed, the unit may not operate properly.

Refer to the operating instruction "Chapter 1 Editing" for setup and adjustment.

[Connector Panel]

(1) The setting of 75 Ω termination switch :

REF VIDEO 75 Ω ON/OFF

ON : When the line is terminated in this unit.

OFF : When another unit is connected with this unit.

REMOTE (9P) : LOCAL

RGB OUT   : OFF

9-2. Setting on the Front Panel Unit

[Sub Panel]

(1) SYNC PHASE   : Adjusts the H sync phase of video output signal with reference to the REF. IN signal.

(2) SC PHASE   : Adjusts the subcarrier phase of the composite video output signal with reference to the REF. IN signal.

(3) MENU   : Turns on and off the menu mode.

(4) ↑ ↓ ← →   : Used for item setting in the menu, and for setting the points A and B of REPEAT.

(5) RESET (NO)   : Used for the following purposes:

   • Initialization of the menu setting

   • "No" reply from the DSR-85/85P to the inquiry.

   • COUNTER reset (on display block)

(6) SET (YES)   : Used for the following purposes:

   • Storing the menu and setting the points A and B of REPEAT

   • "Yes" reply from the DSR-60/60P to the inquiry.

9-3. On-board Switch Setting

SV-184

```
   A    B    C    D    E    F    G    H    J    K    L    M    N    P
1
                                      S201  S101
2

3

4

5

6
```
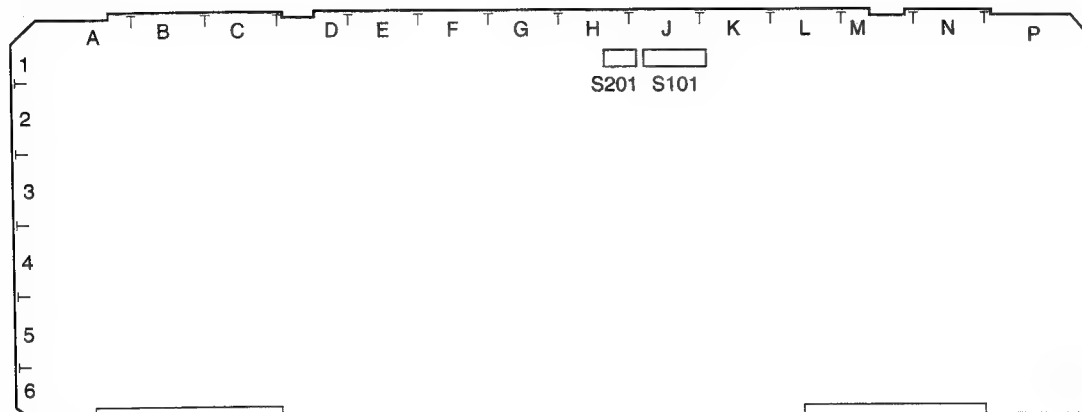
S101 : 8 bit

Switch No.	Description	Factory Setting

1	Set this switch to ON in some adjustment modes.
	
	• Search speed in LOCAL is as follows :
	    PLAY/F.FWD pressed simultaneously : FWD search×5
	    PLAY/REW pressed simultaneously : REW search×5
	• HOURS METER can enter reset mode.
		OFF

2	factory use	OFF
3	Use this switch when operating the machine with casseette removed.	OFF
4	This defeats an error detection of mechanism and servo system alignment.	OFF
5	factory use	OFF
6	factory use	OFF
7	factory use	OFF
8	factory use	OFF

S201 : 4 bit

Switch No.	Description	Factory Setting
1	ITI center shift switch: Set to ON when playing back the tracking reference tape.	OFF
2	factory use	OFF
3	factory use	OFF
4	factory use	OFF

SY-241
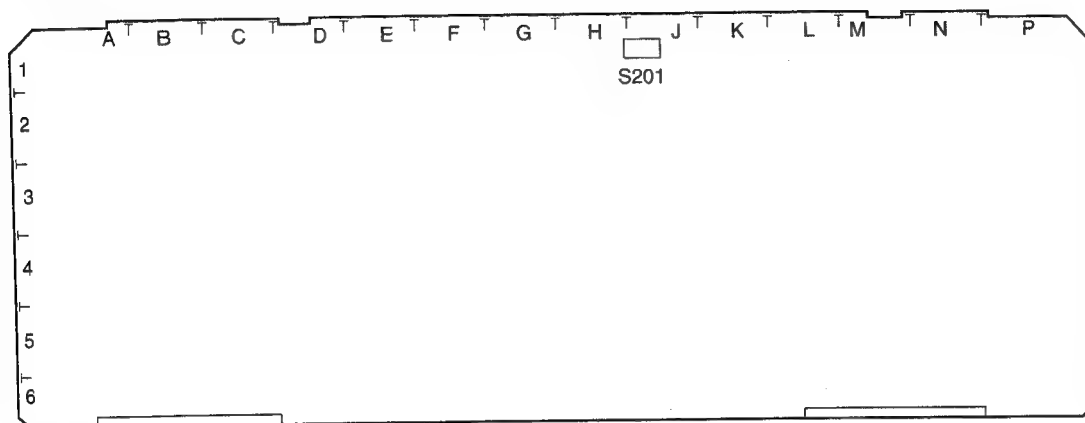
S201 : 4 bit

Destination Code Switch Setting

	UC	J	PAL
No. 1	OFF	OFF	ON
No. 2	OFF	ON	*) ON/OFF

* Note) ON/OFF indicates that either position is acceptable.

Set it to OFF normally.

Function Setting

	ON	OFF	Factory Setting
No. 3	factory use (×1 VTR)	factory use (×4 VTR)	ON
No. 4	factory use (PLAYER)	factory use (RECORDER)	ON

IO-149
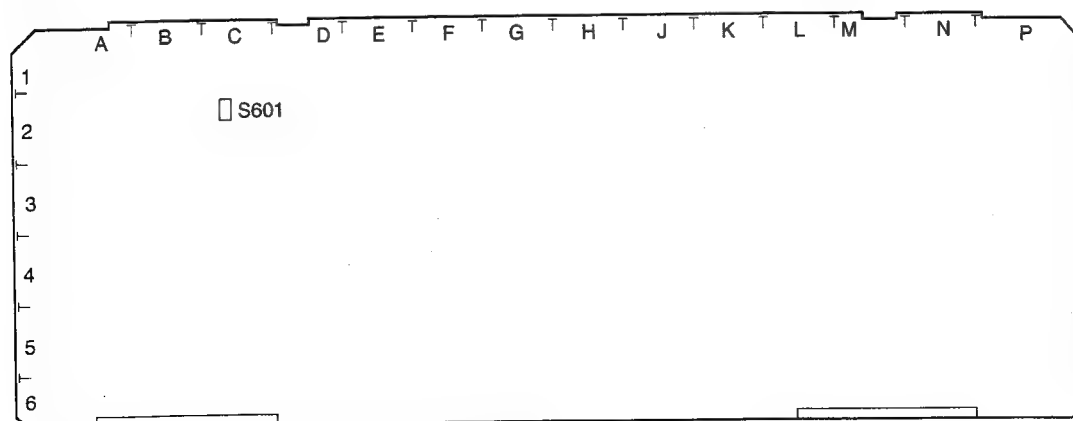
S601 : RGB adjustment switch (factory setting : OFF)

SDI-26
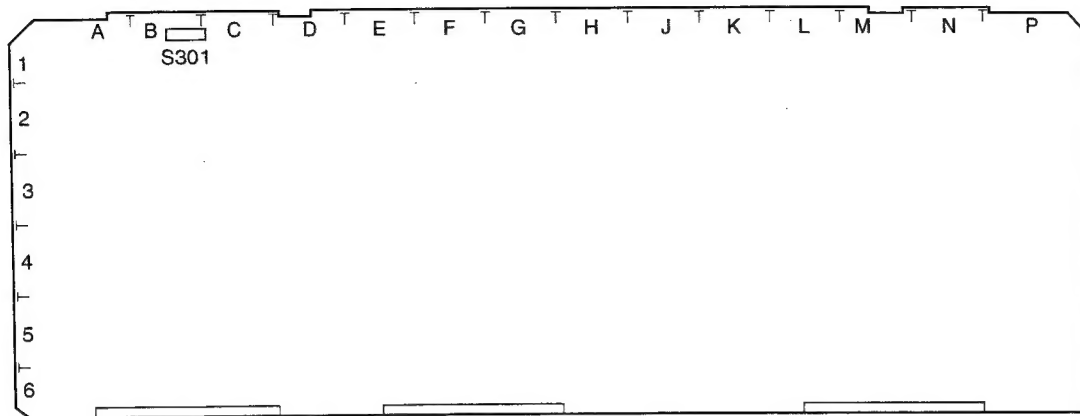
S301 : Switch for error check (factory setting : OFF)

9-4. System Adjustment After Installation

Observe the following precautions when this equipment is used for editing system.

- The REF. VIDEO INPUT requires video signal which complies with RS-170A.
- Adjust the sync phase of this equipment to the system sync with [SYNC PHASE] control on the sub control panel.
- Adjust the SCH phase of this equipment to the system SCH with [SC PHASE] control on the sub control panel.
- When this equipment is connected to the type of switcher that does not replace the sync signal, the SYNC/BURST level adjustment is required.

9-5. Connection of Editor Controller

When an edit controller is connected, set the edit controller as follows.

1. RM-450

   LEFT SWITCH

7	6	5	4	3	2	1	0
OFF	−	−	OFF	−	−	−	−

   RIGHT SWITCH

	7	6	5	4	3	2	1	0
NTSC	OFF	−	OFF	ON	OFF	OFF	ON	ON
PAL	ON	−	OFF	ON	OFF	OFF	ON	ON

2. PVE-500

   No setting is required for equipment connection.

3. BVE-600/900/910/2000

NTSC

	BLOCK-1								BLOCK-2						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DSR-60	80	12	00	96	05	05	03	80	0A	08	FE	00	80	5A	FF
DSR-85	80	10	00	96	05	05	03	80	0A	08	FE	00	80	5A	FF

PAL

	BLOCK-1								BLOCK-2						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DSR-60P	81	12	00	7D	05	05	02	80	0A	07	FE	00	80	4C	FF
DSR-85P	81	10	00	7D	05	05	02	80	0A	07	FE	00	80	4C	FF

4. FXE-100/100P/120/120P

NTSC

	BLOCK-1								BLOCK-2						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DSR-60	80	12	00	96	05	05	03	80	0A	08	FB	00	80	5A	FF
DSR-85	80	10	00	96	05	05	03	80	0A	08	FB	00	80	5A	FF

PAL

	BLOCK-1								BLOCK-2						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DSR-60P	81	12	00	7D	05	05	02	80	0A	07	FB	00	80	4C	FF
DSR-85P	81	10	00	7D	05	05	02	80	0A	07	FB	00	80	4C	FF

5. BVE-800

SW2

	1	2	3	4	5	6	7	8
NTSC	ON	OFF	ON	ON	−	ON	ON	−
PAL	ON	OFF	ON	ON	−	ON	ON	−

SW3

	1	2	3	4	5	6	7	8
NTSC	OFF	ON	OFF	ON	−	ON	OFF	OFF
PAL	ON	ON	OFF	ON	−	ON	OFF	OFF

10. SETUP CHECK SHEET

Write down the setup information (setup menu and switch positions on board) before starting to repair the equipment. Use it for re-setup.

For an editing room where system connection is frequently changed, copy this sheet and write the several types of setup.

- Setup menu information can be saved separately from record area in this equipment. But some repair work can destroy the saved information. This sheet is effective for the backup.

CONNECTOR PANEL

REF. VIDEO IN 75 Ω   ☐ ON   ☐ OFF

FRONT PANEL

REMOTE/LOCAL	☐ REMOTE	☐ LOCAL	
COUNTER/TC/U-BIT	☐ COUNTER	☐ TC	☐ U-BIT
HEADPHONES	└┴┴┴┴┴┴┴┴┘		

SETUP MENU

Menu Level 1	Menu Level 2/3		Factory Setting	Setting
REPEAT FUNCTION	REPEAT MODE		OFF	
	REPEAT TOP		TAPE TOP	
	REPEAT END		VIDEO END	
	A PRESET		00 : 00 : 00 : 00	
	B PRESET		00 : 00 : 00 : 00	
OPERATIONAL FUNCTION	LOCAL ENABLE		STOP & EJECT	
	MAX SEARCH SPEED		×32	
	AUTO REW		ENABLE	
	PREROLL TIME		5 SEC	
	AFTER CUE-UP		STOP	
	PLAY START		NTSC : 5 FRAME DELAY PAL : 4 FRAME DELAY	
DISPLAY CONTROL	CHARA.DISPLAY		ON	
	CHARA. POSITION			
	CHARA. TYPE		WHITE (with BKGD)	
	DISPLAY INFO		TIME DATA & STATUS	
	SUB STATUS		OFF	
	MENU DISPLAY		WHITE (with BKGD)	
	PEAK HOLD		OFF	
	OVER DISP HOLD		OFF	
	BRIGHTNESS		100 %	
	ALARM		ON	
	REF. ALARM		OFF	
TIME CODE (NTSC only)	DF MODE (NTSC only)		ON (DF)	
TAPE PROTECTION	FROM STOP	STOP TIMER	8 MIN	
		NEXT MODE	STANDBY OFF	
	FROM STILL	STILL TIMER	8 MIN	
		NEXT MODE	STEP FWD	
VIDEO CONTROL	STILL MODE		FIELD 1 STILL	
	SETUP ADD (NTSC only)		OFF	
	SYNC ON GREEN		ON	
	CC (F1) BLANK (NTSC only)		OFF	
	CC (F2) BLANK (NTSC only)		OFF	
AUDIO CONTROL	REC POINT MUTE		OFF	
	REF LEVEL		NTSC : –20 dB PAL : –18 dB	
	OUTPUT LEVEL		+4 dB	
factory use	PWR. ON UNTH		ON	
	LEVEL MARKER		OFF	
	CLIPLINK CUEUP		ON	
MENU GRADE			BASIC	